



## FRAME GROUP

### SECTION "A"

	Page
Frame alignment . . . . .	1
Checking frame alignment . . . . .	1
Axle alignment with frame . . . . .	1
Frame straightening . . . . .	2





## FRAMES

### Frame Alignment

Any vehicle that has been in an accident which might result in a bent or sprung frame should have the frame and axle alignment carefully checked.

### Checking Frame Alignment

A satisfactory method of checking the frame and axle alignment, particularly when a body and cab is on a chassis, is to mark on a level floor all points at which measurements are to be taken. Tack or cement pieces of paper to the floor directly under each point of measurement on the chassis as indicated by the letter "K" in the various figures. The points of measurement must be accurately marked in relation to the frame in order to obtain a satisfactory alignment check.

After each measurement point has been carefully marked on the floor, proceed as follows:

1. Locate center line of chassis by measuring front and rear end widths, using marks on floor. If frame widths check, draw center line on floor, full length of chassis. If frame widths do not check, lay out center line as follows:
2. Center line can be drawn through the intersection of any one pair of equal diagonals (A-A, B-B, C-C, D-D) and center point of one end of frame or through points of intersection of any two pairs of equal diagonals.

3. Measure distance from center line to opposite points marked over entire length of frame. Measurements should not vary more than  $1/8"$  at any point.
4. Measuring diagonals, A-A, B-B, C-C, D-D will indicate point where misalignment occurs. If diagonals in each pair check with  $1/8"$ , that part of frame included between points of measurement may be considered in satisfactory alignment. These diagonals should intersect within  $1/8"$  of center line.

### Axle Alignment with Frame

After determining that frame is properly aligned, the axle alignment with the frame should be checked by comparing diagonals.

Dimensions for side elevation of frame should be checked at the points indicated and should not vary more than  $1/8"$ .

### Cutting, Reinforcing, Riveting and Welding

Whenever it is necessary to cut the frame, the side rail should be cut at an angle of 45 degrees. This method distributes the cut and weld over a greater area than a cut made at right angles with the rail.

Reinforcements can be made with flat, channel, or angle stock. Because of difficulties encountered when inserting channel reinforcements into frame side rails, the use of angle reinforcements is acceptable. Wherever possible the reinforcement should extend from the

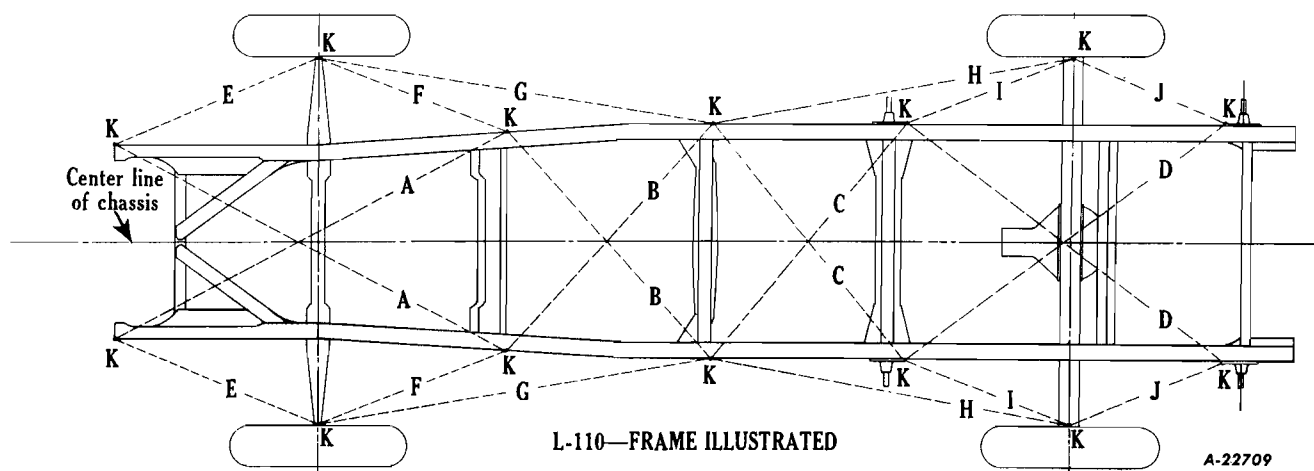


Fig. 1 - Frame and Axle Alignment Checking Diagram.

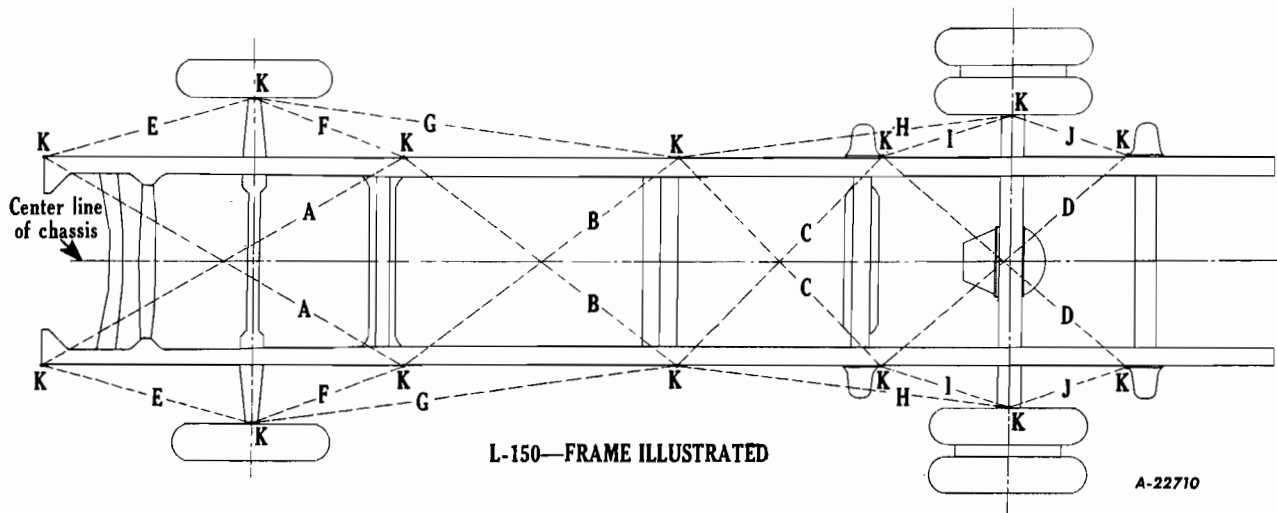


Fig. 2 - Frame and Axle Alignment Checking Diagram.

front axle to slightly beyond the rear spring front mounting bracket as shown in illustration below. This procedure, of course, may be impractical in some instances because of the position of attached units and existing cross-members. The reinforcement thickness should not exceed that of the side rail to be reinforced.

Wherever possible, parts should be securely riveted together. Hot rivets are acceptable, as they can be more easily driven with hand tools. Cold rivets should only be used where tools of sufficient power to properly set the rivets are provided.

Electric arc-welding is recommended for all frame welding. The heat of the weld is localized and burning of material is minimized when this method is used.

In addition to thoroughly welding the cut in the side rail, the outside edges of the reinforce-

ments should be welded to the frame after the reinforcements are riveted. All unused holes should be filled with welding material. Welding rod should be substantially the same material as that used in the frame.

The diameter of the reinforcement rivets depends upon spacing and the number of rivets used. Generally, rivets should be from 50% to 100% as heavy in diameter as the total thickness of the plates to be riveted.

### Frame Straightening

Use of heat is not recommended when straightening frames. Heat weakens structural characteristics of frame members and all straightening should be done cold. Frame members which are bent or buckled sufficiently to show cracks or weakness after straightening, should be replaced, or reinforced.

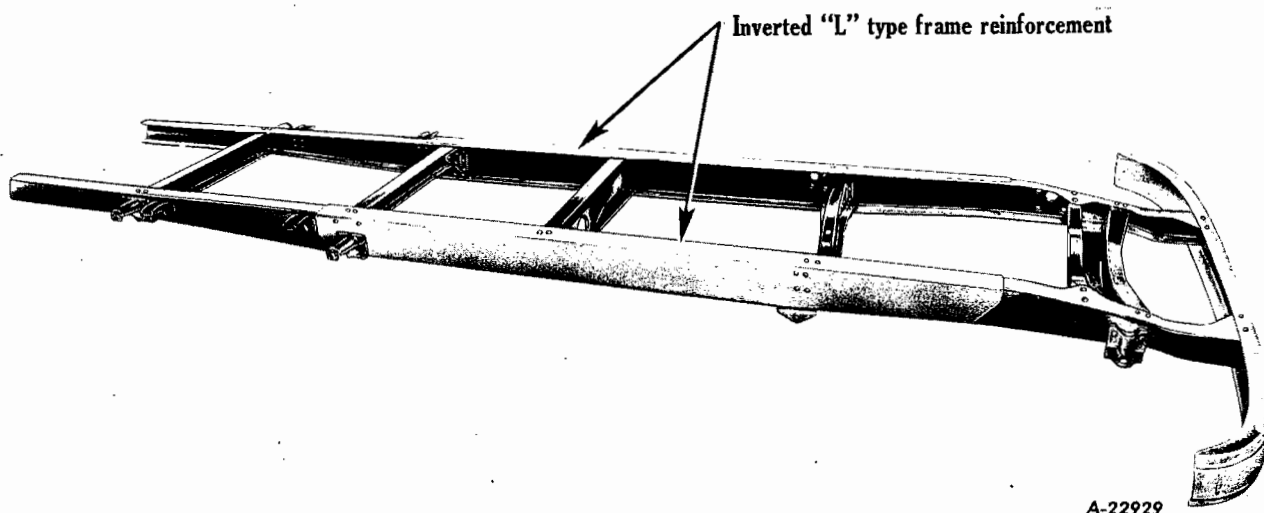


Fig. 3